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INSURANCE INJURY REPORT

Passenger Cars, Vans,
Pickups, and Utility Vehicles

Highway Loss Data Institute
I87-1

Highway Loss Data Institute
Insurance Injury Report

1985-1987 Models
HLDI I87-1

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SUMMARY

This Highway Loss Data Institute (HLDI) report presents the frequency of claims for injuries to occupants of 1985, 1986, and 1987 model year passenger cars,* vans, pickup trucks, and utility vehicles. Results are shown separately for all injury claims and for those claims for which the medical losses exceeded $250, $500, and $1,000.

Principal Findings

Passenger Cars

- All of the 12 cars with the best results were large models, and many were station wagons. Half of these were manufactured in the United States, the remainder were European imports.

- All of the 24 cars with the worst results were small two-door or four-door vehicles. Both the two-door and four-door versions of the Chevrolet Chevette, Sprint, and Spectrum; Pontiac 1000; Renault Alliance/Encore; and Hyundai Excel were among the cars with the worst results. Fourteen were imported models: eleven from Japan, two from Korea, and one from Yugoslavia.

- Among the cars with the best injury loss experience, the Mercedes SDL/SEL series, consisting of the 300 SDL, 420 SEL, 500 SEL, and 560 SEL, had the lowest overall claim frequency (58 percent below average) and the lowest frequency of claims exceeding $250 (62 percent below average). The midsized Volvo 240 station wagon had the lowest frequency of claims greater than $500 (51 percent below average).

- Among the cars with the worst injury loss experience, the four-door Chevrolet Spectrum had the highest overall injury claim frequency (78 percent above average), the highest frequency of claims exceeding $250 (86 percent above average), and the highest frequency of claims exceeding $500 (86 percent above average). The four-door Hyundai Excel had the highest frequency of claims greater than $1,000 (95 percent above average).

- As a group, small cars had the worst results and large cars had the best, but this size relationship does not hold for every vehicle series because of considerable variation within size groups. For example, among small four-door models, the overall claim frequency of the Chevrolet Spectrum was approximately two and one-half times that for the Saab 900. The two-and four-door Saab 900 models, which are classed as small cars, had better injury results than any of the 55 midsize cars of the same body style.

Vans, Pickups, Utility Vehicles

- Among vans, pickups, and utility vehicles, large utility vehicles had the best injury experience and small utility vehicles and small pickups had the worst.

- The Ford F-250 Super Cab 4x4, Chevrolet 20 Series (3/4 T) 4x4, Ford F-250 Super Cab, Ford E-150 Club Wagon (1/2-3/4 T), and the Chevrolet Suburban (1/2 T), had the lowest overall injury claim frequencies.

- The Toyota Standard Bed pickup, Isuzu Standard Bed pickup, and Suzuki Samurai small utility vehicle had the highest overall injury claim frequencies.

- Injury claim frequencies were closely related to vehicle size, with the larger vehicles having lower claim frequencies.

* Injury results for passenger cars are identified in Table 4 with a square (■) are based on 1985-87 models with manual safety belts; 1988 models of the same cars have either automatic belts or airbags as standard equipment. Passenger cars equipped with automatic restraint systems are identified with a star (★) for air bags, or a circle (●) for automatic belts.

INTRODUCTION

The Highway Loss Data Institute (HLDI) is a nonprofit, public service organization that gathers, processes, and publishes insurance data concerned with human and economic losses associated with motor vehicle use, especially with the ways such losses vary among different kinds of vehicles.

This report compares the frequencies of claims for injuries to occupants of 1985 through 1987 model year passenger cars, vans, pickups, and utility vehicles. In addition to the frequencies of all claims, frequencies are given separately for claims with medical payments exceeding $250, $500, and $1,000. The results are given for individual vehicle series as well as for various groupings based on vehicle size and body style.

In calculating injury claim frequencies, all injuries in a crash-involved vehicle resulting in claims for medical expenses made under personal injury protection insurance coverages are counted as a single claim. The specifications of injury coverages, which principally insure against medical losses to occupants of the insured vehicles themselves, are given in Appendix A. The data analysis methods used in the preparation of this report are detailed in Appendix B. Definitions are given in Appendix C, and Appendix D contains a complete list of the vehicles covered by this report. The data used were supplied by 13 insurers: Aetna, Allstate, Fireman's Fund, GEICO, Kemper, Liberty Mutual, Nationwide, Prudential, Safeco, Sentry, State Farm, Travelers, and USAA.

This report is based on injury coverages and injury claims involving 1985 through 1987 model year vehicles in the period from their introductions through March 1988. It does not include the results for vehicles discontinued prior to the 1987 model year.

RESULTS AND DISCUSSION

This report presents injury claim frequency results for 1985 to 1987 model year vehicles. Results are presented in two sections: The first summarizes the results for passenger cars and the second for vans, pickups, and utility vehicles. The frequency of all injury claims and the frequencies of claims with medical payments exceeding $250, $500, and $1,000 are shown for those vehicles with sufficient exposure.* The results for the larger medical claims categories indicate the frequency of occurrence of increasingly severe injuries. Each claim frequency result, whether for passenger cars, vans, pickups, or utility vehicles, is presented in relative terms, with 100 representing the claim frequency for all passenger cars combined in each claim size category.

The results shown in this report were standardized to reduce the effects due to differences in the mix of operator age group among different vehicles. Standardizing for this nonvehicle factor ensures that its mix is the same for each result. It should be noted that other nonvehicle factors could vary among different vehicles and that any effects resulting from such factors have not necessarily been accounted for in the results presented in this report. The standardization procedure is described in detail in Appendix B.

The relative injury claims experience of particular vehicles does not change substantially from model year to model year providing that the basic design of the vehicle remains essentially unchanged. HLDI has published the results of a statistical analysis (*HLDI Report A-26*) for selected 1981 through 1983 passenger cars that demonstrated that the injury results of individual model year vehicles were generally consistent across model years when the basic vehicle designs remained the same. Because of the general consistency of injury results from model year to model year and because substantial amounts of exposure are needed to produce reliable injury claim frequency results, the data for model years 1985 through 1987 were combined for those vehicles with basic designs that remained unchanged. Vehicle series that were discontinued prior to 1987 (e.g., Chevrolet Citation and Renault Fuego, which were both produced only through model year 1985) are not included. Vehicle series that were redesigned (e.g., Nissan Pulsar, Pontiac Bonneville, and Toyota Tercel) or newly introduced (e.g., Plymouth Sundance, Dodge Shadow, and Volkswagen Fox) in 1987 are included. For each vehicle series and each vehicle subgroup, a separate relative claim frequency was calculated for each model year. The overall result for each vehicle series was then obtained by weighting these relative claim frequencies by the applicable exposure for each model year. (For additional explanation of this procedure, see Appendix B.)

Beginning with the 1987 model year, the federal government requires automobile manufacturers to install front-seat automatic restraint systems—either automatic seat belts or air bags—in 10 percent of their passenger cars. The percentage of vehicles covered by the regulation (49 CFR Sec. 571.208) increases for successive model years to 100 percent for 1990 model year cars.

Because automatic restraint systems are important design changes, the results for vehicle series during their transition from manual to automatic restraint systems were separately computed, and this report includes manual-only or automatic-only injury results for these vehicles, based on which system dominated 1987 model year production. Last year's report (HLDI, I86-1) included only one vehicle series, the Toyota Cressida, with injury results based entirely on models equipped with automatic restraint systems. This year's report reflects the increase in the availability of front-seat automatic restraint systems, including results for 11 cars with automatic seat belt systems and four with driver-side air bags. An additional 11 vehicle series had equipped all their models with automatic restraints by the end of 1987, but injury results in this report are based on models with manual restraint systems. All of these models are specifically identified in the detailed results presented in Table 4. Subsequent injury loss reports will cover the increasing number of vehicles equipped with automatic passenger restraint systems.

*The exposure thresholds for reporting results were 5,000 insured vehicle years for all claims; 10,000 years for claims greater than $250; 15,000 years for claims greater than $500; and 25,000 years for claims greater than $1,000.

Passenger Cars

The total exposure accumulated by passenger cars of the three model years included in this report was over 8.3 million insured vehicle years. Table 1 presents the claim frequencies by claim size for each model year. Claim frequencies decreased rapidly with each successively larger medical cost group. The frequency of claims exceeding $250 was approximately 60 percent of the overall claim frequency, the frequency of claims exceeding $500 was less than half the overall frequency, and the frequency of claims greater than $1,000 was approximately one-third the overall frequency.

The total amount of money paid out, however, was dramatically influenced by the larger claims. For example, claims exceeding $1,000, although representing only 31 percent of all claims, accounted for 87 percent of the total dollars for medical payments. Claims exceeding $500 accounted for 94 percent of the total dollars, and claims over $250 accounted for nearly 97 percent of the total dollars.

Table 2 summarizes the individual vehicle series with the lowest overall injury claim frequencies listed in increasing order of their overall relative claim frequency. The table includes all vehicle series with at least one claim frequency result that is less than half the all-car result, i.e., a relative claim frequency of 49 or less for any of the four claim-size categories. Claim frequency values of less than 50 percent of the all-car average are listed in bold print.

All 12 of the cars listed in Table 2 are large vehicles, and seven are station wagons. Six of these vehicle series were manufactured in the United States, and six were manufactured in Europe.

The large sports and specialty Mercedes-Benz SDL/SEL series, which includes the 300SDL, 420SEL, 500SEL, and 560SEL, had the lowest overall relative claim frequency (42) and the lowest relative frequency (38) of claims exceeding $250. The Volvo 240 station wagon had the lowest relative frequency (49) of claims greater than $500.

Table 3 summarizes the individual vehicle series with the highest overall injury claim frequencies listed in decreasing order of their overall relative claim frequency. This table includes all vehicle series with at least one claim frequency result that is more than 50 percent higher than the all-car result, i.e., a relative claim frequency of 151 or more for any of the four claim-size categories. Claim frequency values that exceed the all-car average by more than 50 percent are shown in bold print.

All of the 24 vehicles listed in Table 3 are small cars. Both

TABLE 1 Personal Injury Protection Coverages—Claim Frequencies by Model Year and Size of Claim

Model Year	Total Exposure (Insured Vehicle Years)	Claim Frequencies Per 1,000 Insured Vehicle Years			
		All Claims	> $250	> $500	> $1,000
1987	1,498,494	21.3	12.1	8.9	6.2
1986	2,982,053	20.7	12.1	9.1	6.4
1985	3,866,215	20.0	12.0	8.9	6.3

TABLE 2 1985-87 Passenger Cars With the Lowest Overall Injury Claim Frequencies—Personal Injury Protection Coverages

Make and Series	Exposure (Insured Vehicle Years)	Relative Claim Frequencies By Size of Claim			
		All	> $250	> $500	> $1,000
Mercedes-Benz SDL/SEL Series*	14,497	**42**	**38**		
Pontiac Parisienne/Safari-S.W.	13,078	**44**	**40**		
Buick Electra-S.W.	6,494	**48**			
BMW 735i	5,477	50			
Saab 9000**	5,476	51			
Buick LeSabre-S.W.	5,187	52			
Jaguar XJ6	16,366	54	56	64	
Oldsmobile Custom Cruiser-S.W.	18,123	55	50	54	
Mercury Grand Marquis	8,711	57			
Ford Crown Victoria-S.W.	19,179	57	**49**	54	
Volvo 240-S.W.	24,947	58	50		**49**
Volvo 740/760-S.W.	10,932	58	**48**		

Vehicle series listed in **bold type** have the lowest injury loss experience (i.e., one result that is more than 50 percent lower than the corresponding all car result). Blanks indicate insufficient exposure.

*consists of the 300SDL, 420SEL, 500SEL, and 560SEL.

**1987 models only

the two-door and four-door versions of the Chevrolet Sprint, Chevette, and Spectrum, Pontiac 1000; Renault Alliance/Encore; and Hyundai Excel were among the cars with the worst injury losses. Fourteen of the 24 vehicles with the worst results in Table 3 are imported models: 11 from Japan, two from Korea, and one from Yugoslavia.

The four-door Chevrolet Spectrum had the highest overall relative claim frequency (178), the highest relative frequency (186) of claims exceeding $250, and the highest relative frequency (189) of claims greater than $500. For vehicles with sufficient exposure available to report a result, the four-door Hyundai Excel had the highest relative claim frequency (195) of claims over $1,000.

Table 4 presents relative injury claim frequency results for all of the 1985 through 1987 models with sufficient exposure. Results are shown for individual series and for each car size and body style group. The individual series results in Table 4 are listed within each group in ascending sequence of their overall relative claim frequencies.

Injury results for cars identifed in Table 4 with a square (■) are based on 1985-87 models with manual safety belts; 1988 models of the same cars have either automatic seat belts or air bags as standard equipment and may, therefore, have better injury claims experience than the models in this report.

Injury results for cars identified in Table 4 with a star or circle are based on models equipped with automatic restraints (★ for air bags, ● for automatic belts). Current models of these cars also have automatic restraints, so the injury results should be consistent among models years. Many additional 1989 models — and all 1990 models — will be equipped with air bags or automatic safety belts.

The results in Table 4 indicate that, as a group, cars with smaller wheelbases had higher injury losses than cars with larger wheelbases. For example, large four-door models had relative claim frequencies of 72 or less for each of the four claim-size categories, whereas small four-door models had relative claim frequencies of about 125. However, this size relationship does not hold for every vehicle series because of considerable variation within size groups. The Mercedes-Benz 380/560SL, Porsche 944 Coupe, and Volkswagen Vanagon have particularly good injury results, even though they are small cars. Saab's 900 (two- and four-door models) had better injury results than any of the 55 midsized cars of the same body style.

Table 4 also shows that there were large differences in the loss experiences of cars within the same car size and body style categories. For example, the overall relative claim frequencies for small four-door models ranged from a low of 73 for the Saab 900 to a high of 178 for the Chevrolet Spectrum, which is approximately a 144 percent difference. Claim frequency results for small two-door models showed more than a twofold difference between the low of 80 for the Saab 900 and high of 162 for the Chevrolet Sprint.

TABLE 3 1985-87 Passenger Cars With the Highest Overall Injury Claim Frequencies— Personal Injury Protection Coverages

Make and Series	Exposure (Insured Vehicle Years)	Relative Claim Frequencies By Size of Claim			
		All	>$250	>$500	>$1,000
Chevrolet Spectrum-4 Dr.	42,976	**178**	**186**	**189**	**194**
Hyundai Excel-4 Dr.**	59,096	**167**	**180**	**188**	**195**
Chevrolet Sprint-4 Dr.**	12,196	**167**	**174**		
Ford EXP**	12,411	**164**	**168**		
Isuzu I-Mark-4 Dr.	10,719	**163**	**175**		
Chevrolet Sprint	18,949	**162**	**164**	**159**	
Chevrolet Spectrum	26,771	**161**	**157**	**155**	**154**
Yogo**	15,941	**159**	**166**	**162**	
Pontiac 1000-4 Dr.	5,598	**158**			
Nissan Pulsar*	8,412	**157**			
Hyundai Excel-2 Dr.**	16,938	**155**	**163**	**169**	
Nissan Sentra*	43,802	**152**	**156**	**156**	**153**
Mitsbishi Corida	9,116	**152**			
Mitsubishi Mirage	11,888	150	**164**		
Ford Escort-2 Dr.*	14,763	150	**158**		
Plymouth Colt-4 Dr.	18,298	149	**151**	**160**	
Dodge Charger	53,888	147	147	143	137
Renault Alliance/Encore-4 Dr.	39,688	145	143	143	143
Plymouth Turismo	53,365	144	147	139	138
Renault Alliance/Encore-2 Dr.	43,494	[illegible]	141	136	136
Pontiac 1000-2 Dr.	7,529				
Chevrolet Chevette-4 Dr.	31,817	[illegible]	141	142	146
Chevrolet Chevette-2 Dr.	31,408	142	144	138	124
Mitsubishi Tredia-4 Dr.	13,396	142	**152**		

Vehicle series listed in **bold type** have the highest injury loss frequency (i.e., one result that is more than 50 percent higher than the corresponding all car result). Blanks indicate insufficient exposure.

*1987 Models Only

**1986 and 1986 Models Only

(Text continues on Page 12.)

Table 4
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Passenger Cars

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1,000
85-87	All	All	8,346,762	100	100	100	100
			SMALL CARS				
	Two-door Models		897,326	127	128	126	126
85-87	Saab	900	26,620	80	77	75	78
85-87	■ Honda	Prelude	79,869	96	95	93	92
85-87	Volkswagen	GTI	15,099	96	95	94	
85-87	Volkswagen	Golf	21,968	100	95	88	
86-87	Acura	Integra	9,835	102			
85-87	Honda	Civic	67,075	103	102	95	95
85-87	■ Mazda	626	24,842	103	106	102	
86-87	Mazda	323	10,409	104	107		
85-87	Subaru	Hatchback	12,501	108	107		
85-87	Volkswagen	Jetta	9,923	109			
87	Plymouth	Sundance	6,053	109			
86-87	Toyota	Celica	52,186	118	125	121	121
87	Dodge	Shadow	6,070	119			
87	Toyota	Tercel	11,198	122	126		
85-87	Nissan	200SX	47,990	124	123	126	131
85-87	Volkswagen	Scirocco	11,323	124	121		
85-87	Plymouth	Colt	19,382	127	124	125	
85-87	Dodge	Colt	24,120	135	131	130	
85-87	■ Isuzu	Impulse	12,171	138	143		
85-87	Toyota	Corolla	43,401	141	148	150	147
85-87	Chevrolet	Chevette	31,408	142	145	138	124
85-87	Renault	Alliance/Encore	43,494	143	141	136	136
85-87	Pontiac	1000	7,529	143			
85-87	Plymouth	Turismo	53,365	144	147	139	138
85-87	Dodge	Charger	53,888	147	147	143	137
85-87	Mitsubishi	Mirage	11,888	150	164		
87	● Ford	Escort	14,763	150	158		
87	Nissan	Sentra	43,802	152	156	156	153
85-87	Mitsubishi	Cordia	9,116	152			
86-87	Hyundai	Excel	16,938	155	163	169	
87	Nissan	Pulsar	8,412	157			
86-87	Yugo	Yugo	15,941	159	166	162	
85-87	Chevrolet	Spectrum	26,771	161	157	155	154
85-87	Chevrolet	Sprint	18,949	162	164	159	

(See notes on page 11.)

Table 4 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Passenger Cars

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1,000
			SMALL CARS (CONT'D)				
	Four-door Models		**1,055,057**	**125**	**125**	**126**	**125**
85-87	Saab	900	19,680	73	67	69	
85-87	Mazda	626	73,569	98	91	92	85
86-87	Acura	Integra	7,508	100			
85-87	Volkswagen	Golf	28,342	100	99	97	84
87	Plymouth	Sundance	6,721	103			
85-87	Volkswagen	Jetta	76,458	108	108	109	109
85-87	Subaru	GL 4WD	11,367	113	106		
85-87	Honda	Civic	79,676	113	113	114	112
85-87	Chevrolet	Nova	77,407	114	112	111	106
85-87	Plymouth	Horizon	96,775	118	111	110	106
85-87	Toyota	Corolla	131,574	120	123	125	123
87	Dodge	Shadow	5,909	120			
85-87	Dodge	Omni	78,190	122	115	111	112
86-87	Mazda	323	24,326	124	120	114	
85-87	Subaru	DL/GL Sedan	47,863	133	135	137	140
87	● Ford	Escort	6,899	140			
87	Nissan	Sentra	20,827	140	146	147	
85-87	Dodge	Colt	22,930	140	146	148	
85-87	Mitsubishi	Tredia	13,396	142	152		
85-87	Chevrolet	Chevette	31,817	143	141	142	146
85-87	Renault	Alliance/Encore	39,688	145	143	143	143
85-87	Plymouth	Colt	18,298	149	151	160	
85-87	Pontiac	1000	5,598	158			
85-87	Isuzu	I-Mark	10,719	163	175		
86-87	Hyundai	Excel	59,096	167	180	188	195
86-87	Chevrolet	Sprint	12,196	167	174		
85-87	Chevrolet	Spectrum	42,976	178	186	189	194
	Station Wagons/Passenger Vans		**218,825**	**90**	**85**	**83**	**84**
85-87	Volkswagen	Vanagon	7,348	65			
85-87	Toyota	Van	25,530	78	77	81	87
85-87	Honda	Civic 4WD	7,695	85			
85-87	Subaru	DL/GL 4WD	47,142	86	75	73	74
86-87	Nissan	Stanza	16,543	87	86	76	
85-87	Toyota	Tercel 4WD	16,754	93	89	85	
85-87	Subaru	DL/GL	39,900	97	87	87	89
85-87	Honda	Civic	23,738	98	93	94	
85-87	Toyota	Tercel	16,352	103	105	104	

(See notes on page 11.)

Table 4 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Passenger Cars

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1,000
			SMALL CARS (CONT'D)				
	Sports & Specialty		**348,852**	**106**	**109**	**111**	**112**
85-87	★Mercedes	380/560SL Conv.	5,155	60			
85-87	Porsche	944 Coupe	16,716	60	58	64	
85-87	Chevrolet	Corvette	31,436	88	94	105	100
86-87	Mazda	RX-7	27,679	91	91	95	98
85-87	Nissan	300ZX 2+2	17,839	91	98	105	
85-87	Volkswagen	Cabriolet	10,713	95	101		
85-87	Nissan	300ZX	47,788	98	101	102	103
85-87	Toyota	MR2	23,114	124	139	145	
85-87	Pontiac	Fiero	63,962	125	129	127	127
85-87	Honda	Civic CRX	66,941	128	131	128	129
86-87	Ford	EXP	12,411	164	168		
			MIDSIZE CARS				
	Two-door Models		**1,152,807**	**107**	**108**	**108**	**108**
85-87	Oldsmobile	Cutlass (RWD)	149,400	86	90	89	91
87	●Honda	Accord	5,544	89			
85-87	Oldsmobile	Cutlass Ciera	33,344	90	84	86	83
85-87	Buick	Century	10,244	90	81		
85-87	■Pontiac	Grand Prix	46,946	95	99	104	102
85-87	■Buick	Regal	102,299	95	96	99	100
85-87	Chevrolet	Monte Carlo	104,637	96	98	100	99
85-87	Pontiac	6000	6,980	97			
87	●Chrysler	LeBaron	6,647	100			
85-87	Ford	Thunderbird	134,244	101	106	107	109
87	●Pontiac	Grand Am	8,752	105			
85-87	Chevrolet	Celebrity	24,266	106	104	106	
85-87	Mercury	Cougar	113,349	107	111	115	114
85-87	■Buick	Somerset	66,539	113	112	109	108
85-87	Plymouth	Reliant	20,706	114	110	109	
85-87	Dodge	Aries	17,385	117	115	111	
85-87	Oldsmobile	Firenza	9,236	123			
85-87	■Mercury	Topaz	11,350	128	115		
85-87	Pontiac	Sunbird	47,445	128	123	119	113
85-87	■Ford	Tempo	58,323	129	135	133	134
85-87	Buick	Skyhawk	44,443	129	126	120	124
85-87	Chevrolet	Cavalier	123,051	136	135	134	131

(See notes on page 11.)

Table 4 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Passenger Cars

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1,000
		MIDSIZE CARS (CONT'D)					
	Four-door Models		1,995,772	96	95	94	94
85-87	Oldsmobile	Cutlass (RWD)	56,144	76	73	73	68
87	● Toyota	Camry	25,781	79	83	78	77
86-87	Ford	Taurus	69,883	81	79	81	82
86-87	Mercury	Sable	27,099	83	81	85	88
85-87	● Toyota	Cressida	41,379	84	91	97	99
85-87	Plymouth	Caravelle	29,861	85	81	79	76
85-87	Oldsmobile	Cutlass Ciera	218,633	85	82	80	80
85-87	Buick	Century	174,500	85	84	87	86
85-87	Chrysler	New Yorker	55,234	87	89	95	101
85-87	Volvo	240	41,673	87	87	91	91
86-87	Honda	Accord	138,284	88	84	85	86
85-87	Chrysler	LeBaron GTS	59,852	89	78	76	80
85-87	Pontiac	6000	112,351	89	89	88	87
85-87	Dodge	Lancer	40,674	90	88	87	87
85-87	Chevrolet	Celebrity	180,035	92	90	89	87
85-87	Dodge	600	25,313	93	97	92	89
85-87	Cadillac	Cimarron	21,160	94	95	94	
87	● Nissan	Maxima	13,937	95	97		
85-87	Chrysler	LeBaron	45,730	96	100	100	95
85-87	Peugeot	505	12,411	99	105		
85-87	Volkswagen	Quantum	9,250	103			
85-87	Audi	4000	16,156	104	102	104	
87	Nissan	Stanza	16,667	105	106	107	
85-87	Dodge	Aries	52,861	105	101	100	98
85-87	Mitsubishi	Galant	17,210	108	120	124	
85-87	■ Mercury	Topaz	40,452	112	107	107	108
85-87	■ Ford	Tempo	165,807	112	114	112	113
86-87	■ Buick	Skylark	19,099	113	119	120	
85-87	Plymouth	Reliant	58,892	115	115	116	118
85-87	Buick	Skyhawk	19,768	120	116	116	
85-87	Pontiac	Sunbird	34,677	121	115	109	103
85-87	Chevrolet	Cavalier	128,483	122	121	118	118
85-87	Oldsmobile	Firenza	18,221	123	120	122	

(See notes on page 11.)

Table 4 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Passenger Cars

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1,000
			MIDSIZE CARS (CONT'D)				
	Station Wagons/Passenger Vans		**380,514**	**80**	**74**	**71**	**71**
85-87	Volvo	240	24,947	58	50	49	
86-87	Ford	Taurus	28,595	61	54	53	51
85-87	Pontiac	6000	14,805	63	57		
86-87	Mercury	Sable	9,821	64			
85-87	Chrysler	LeBaron	7,233	69			
85-87	Buick	Century	23,443	70	63	59	
85-87	Oldsmobile	Cutlass Ciera	31,934	71	64	64	62
85-87	American	Eagle	6,951	78			
85-87	Chevrolet	Celebrity	65,521	82	74	70	68
85-87	Dodge	Colt Vista	12,125	93	94		
85-87	Dodge	Aries	24,000	93	80	73	
85-87	Plymouth	Reliant	26,564	93	87	84	81
85-87	Pontiac	Sunbird	5,275	94			
85-87	Chevrolet	Cavalier	50,211	103	98	97	100
85-87	Plymouth	Colt Vista	9,984	104			
85-87	Oldsmobile	Firenza	5,360	108			
	Sports & Specialty		**719,811**	**106**	**109**	**110**	**113**
86-87	Saab	9000	5,476	51			
85-87	Volvo	740/760 SW	10,932	58	48		
86-87	Acura	Legend 4D	12,337	60	58		
85-87	BMW	5-Series	19,242	68	67	65	
86-87	Cadillac	Seville	5,752	68			
85-87	Lincoln	Continental	19,846	75	74	73	
85-87	Lincoln	Mark VII	16,443	76	81	88	
86-87	Toyota	Supra	12,106	81	81		
86-87	Buick	Riviera	5,876	81			
85-87	Volvo	740/760 4D	43,966	81	85	88	89
86-87	Cadillac	Eldorado	7,673	82			
85-87	Audi	5000 4D	47,621	82	88	91	96
85-87	★Mercedes	190D/E	12,291	91	94		
85-87	BMW	318i/325 4D	23,030	91	90	93	
85-87	BMW	318i/325 2D	35,175	93	99	105	102
85-87	Merkur	XR4Ti	8,607	100			
85-87	Ford	Mustang Conv.	16,267	103	109	106	
85-87	Pontiac	Firebird	93,570	119	123	127	134
85-87	Ford	Mustang	151,239	127	128	126	127
85-87	Chevrolet	Camaro	158,135	128	134	135	136

(See notes on page 11.)

Table 4 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Passenger Cars

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1,000
			LARGE CARS				
	Two-door Models		**48,253**	**72**	**75**	**75**	**79**
85-87	Mercury	Grand Marquis	8,711	57			
85-87	Chevrolet	Caprice	11,003	70	74		
85-87	Oldsmobile	Ninety-Eight	10,067	72	79		
85-87	Ford	Crown Victoria	9,928	76			
	Four-door Models		**693,882**	**68**	**70**	**71**	**72**
87●	Pontiac	Bonneville	7,193	58			
85-87	Mercury	Grand Marquis	112,053	62	66	65	68
85-87	Plymouth	Gran Fury	11,015	65	57		
85-87	Dodge	Diplomat	20,222	67	65	57	
85-87	Chevrolet	Caprice/Impala	129,923	67	68	70	69
85-87	Buick	Electra	96,170	68	68	67	69
85-87	Ford	Crown Victoria	86,928	69	70	71	70
85-87	Oldsmobile	Ninety-Eight	112,078	69	72	72	73
85-87	Chrysler	Fifth Avenue	100,223	74	79	85	91
87●	Buick	LeSabre	7,003	74			
87●	Oldsmobile	Delta 88	11,069	87	95		
	Station Wagons/Passenger Vans		**467,360**	**63**	**59**	**58**	**57**
85-87	Pontiac	Parisienne/Safari	13,078	44	40		
85-87	Buick	Electra	6,494	48			
85-87	Buick	LeSabre	5,187	52			
85-87	Oldsmobile	Custom Cruiser	18,123	55	50	54	
85-87	Ford	Crown Victoria	19,179	57	49	54	
85-87	Mercury	Grand Marquis	10,085	58	56		
85-87	Chevrolet	Caprice	37,577	59	53	50	54
85-87	Dodge	Caravan	115,186	62	59	59	53
85-87	Plymouth	Voyager	114,669	63	59	56	56
85-87	GMC	Safari Van	12,130	65	63		
86-87	Ford	Aerostar	58,468	69	67	67	67
85-87	Chevrolet	Astro Van	54,168	70	72	75	70

(See notes on page 11)

Table 4 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Passenger Cars

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1,000
			LARGE CARS				
	Sports & Specialty		368,304	67	71	74	77
85-87	★Mercedes	SDL/SEL Series	14,497	42	38		
85-87	■BMW	735i	5,477	50			
85-87	Jaguar	XJ6	16,366	54	56	64	
85-87	Cadillac	Brougham 4D	44,994	62	65	69	71
85-87	Cadillac	Fleetwd/Devlle 4D	134,539	68	71	74	77
86-87	★Mercedes	260E/300D/E	13,399	68	72		
85-87	Lincoln	Town Car	93,089	69	75	78	81
85-87	Cadillac	Fleetwd/Devlle 2D	43,304	84	89	94	99

Notes for Table 4

Injury results for cars identified with a square (■) are based on 1985-87 models with manual safety belts; 1988 models of the same cars have either automatic belts or air bags as standard equipment and may, therefore, have better injury claims experience than the earlier models.

Injury results for cars identified with a star or cirlce are based on models equipped with automatic restraints (★ for air bags, ● for automatic belts). Current models of these cars also have automatic restraints, so the injury results should be consistent among model years. Many additional 1988-89 models—and all 1990 models—will be equipped with air bags or automatic safety belts.

Results are standardized by the distribution:

Youthful Operator	No Youthful Operator
10%	90%

Blanks indicate insufficient exposure.

Minimum exposure requirements for reporting:

All Claims	—	5,000 Vehicle Years
Claims >$250	—	10,000 Vehicle Years
Claims >$500	—	15,000 Vehicle Years
Claims >$1000	—	25,000 Vehicle Years

Vans, Pickups, and Utility Vehicles

This section presents injury claim frequency results for 1985 through 1987 model year vans, pickups, and utility vehicles. The results for pickups are presented for small and standard pickups. Small pickups are defined as those with curb weight of less than 3,500 pounds. The utility vehicle results are divided into three wheelbase size groups: Small utility vehicles are those with wheelbases less than 100 inches; intermediate utility vehicles are those with wheelbases in the range 100 to 120 inches; and large utility vehicles as those with wheelbases exceeding 120 inches.

The results for vans, pickups, and utility vehicles are presented in relative terms with the value 100 corresponding to the result for all passenger cars combined in each claim size category. Thus, the value 60 for the overall relative claim frequency of all 1985 through 1987 model year vans indicates a claim frequency result that was 40 percent better than the result for all 1985 through 1987 model year passenger cars.

The total exposure for vans, pickups, and utility vehicles represented in the three model years included in this report was approximately 2.4 million insured vehicle years. Figure 1 displays the results by size of claim for each of the six vehicle size groups. For pickups and utility vehicles, there was a strong relationship between vehicle size and injury claim frequencies; the larger vehicles tended to have lower claim frequencies. The best claim frequency results were for large utility vehicles. (The two models of the Chevrolet Suburban (1/2T) accounted for more than 60 percent of the exposure for this vehicle group.) Small pickups and small utility vehicles had the highest claim frequency results. (The Ford Bronco II 4x4 and Suzuki Samurai contributed over 80 percent of the small utility vehicle group's exposure.)

Table 5 presents relative injury claim frequency results for all of the 1985 through 1987 model year vans, pickups, and utility vehicles with sufficient exposure. Results are shown for individual series and for each vehicle group. Within each vehicle group, the individual series are listed in ascending sequence of their overall relative claim frequencies.

As Table 5 shows, the vehicles with the lowest overall injury claim frequencies were the Ford F-250 Super Cab 4x4 (35), Chevrolet 20 Series (3/4 T) 4x4 (37), and the Ford F-250 Super Cab (41), all standard sized pickups; the Chevrolet Suburban (1/2 T) (38), a large utility vehicle; and the Ford E-150 Club Wagon (43), a van.

The Toyota Standard Bed (116), and Isuzu Standard Bed (113), both small pickups, and the small utility Suzuki Samurai (115) had the highest overall injury claim frequency results. The Toyota cargo van (126) had the highest frequency of injury claims exceeding $500.

FIGURE 1 1985-87 Model Year Van, Pickup, and Utility Vehicle Relative Claim Frequencies—Personal Injury Protection Coverages

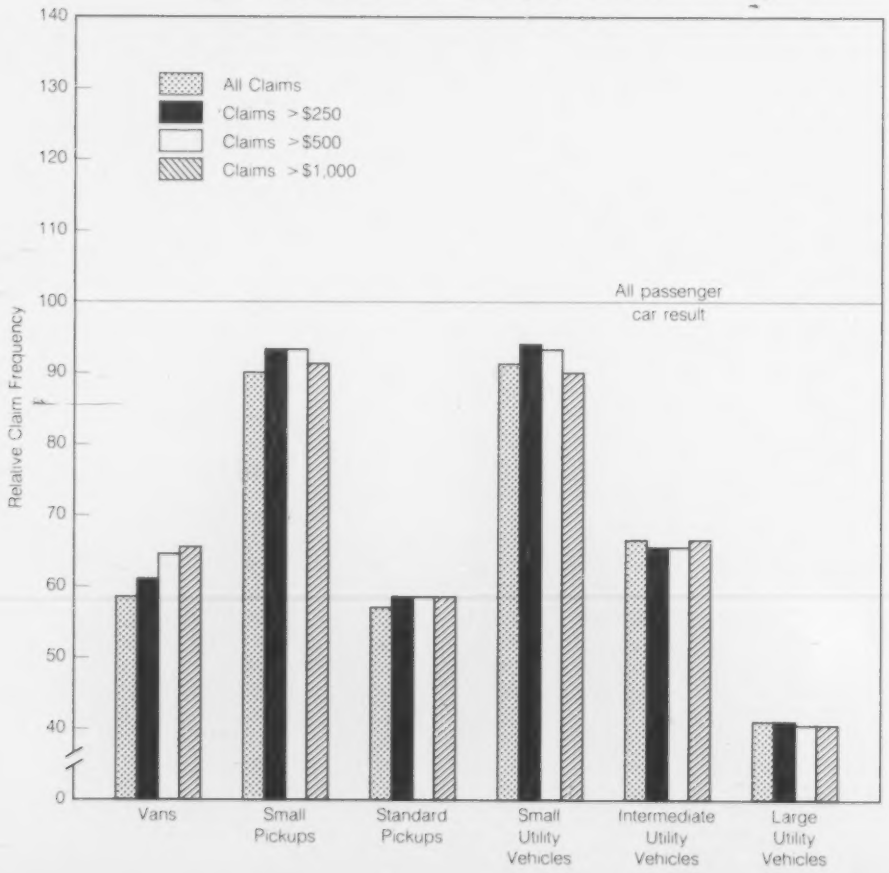

Table 5
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Vans,
Pickups, and Utility Vehicles

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1000
			VANS				
	All Vans		**330,557**	**60**	**62**	**64**	**67**
85-87	Ford	E-150 Club Wag.(1/2-3/4T)	10,568	43	45		
85-87	Dodge	B250 (3/4T)	9,625	49			
85-87	Chevrolet	Sportvan (3/4T)	11,160	51	50		
85-87	Ford	E-250 Econoline (3/4T)	5,501	51			
85-87	GMC	Vandura (3/4T)	13,471	52	57		
85-87	Ford	E-150 Econoline(1/2-3/4T)	78,263	52	54	55	58
85-87	Dodge	B250 Cargo Van	31,211	53	55	56	55
85-87	Chevrolet	Chevyvan (3/4T)	53,950	53	53	54	56
85-87	Dodge	B150 (1/2T)	9,491	56			
85-87	Dodge	B150 Cargo Van	12,412	65	66		
85-87	GMC	Safari Cargo Van	6,804	67			
85-87	Dodge	Mini Ram/Royal Van	9,390	73			
85-87	Chevrolet	Astro Cargo Van	30,206	75	77	81	76
85-87	Chevrolet	Chevyvan (1/2T)	11,004	76	79		
86-87	Ford	Aerostar Cargo Van	8,507	89			
85-87	Toyota	Cargo Van	19,235	99	111	126	
			PICKUPS				
	Small Pickups		**773,060**	**91**	**94**	**94**	**92**
86-87	Jeep	Comanche Long Bed 4x4	5,885	52			
85-87	GMC	S15 4x4	6,289	61			
86-87	Ford	Ranger Super Cab	19,343	65	69	68	
85-87	Chevrolet	S10 4x4	26,329	71	61	56	55
86-87	Mazda	Long Bed	14,314	73	76		
85-87	Chevrolet	El Camino	12,281	74	69		
86-87	Nissan	King Cab 4x4	8,076	74			
86-87	Jeep	Comanche Long Bed	5,940	77			
87	Dodge	Dakota (1/2T)	12,818	77	75		
86-87	Ford	Ranger Super Cab 4x4	9,228	78			
86-87	Mazda	Cab Plus	17,234	78	78	84	
85-87	GMC	S15	22,910	85	87	87	
85-87	Toyota	Xtra Cab	20,167	85	95	101	
85-87	Ford	Ranger 4x4	35,020	88	84	79	77
85-87	Toyota	Xtra Cab 4x4	20,317	89	95	102	
86-87	Nissan	King Cab	10,350	89	96		

(See notes on page 15.)

Table 5 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Vans,
Pickups, and Utility Vehicles

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1000
		PICKUPS (CONT'D)					
86-87	Toyota	Xtra Cab Long Bed	7,606	90			
85-87	Toyota	Long Bed (1/2T) 4x4	8,599	91			
86-87	Mazda	Standard Bed	42,698	91	95	96	92
85-87	Ford	Ranger	126,011	91	94	93	90
85-87	Chevrolet	S10	105,801	92	96	95	91
85-87	Isuzu	Long Bed	9,067	93			
86-87	Nissan	Standard Bed	33,666	94	99	98	97
85-87	Toyota	4Runner	15,634	97	106	109	
85-87	Toyota	Long Bed (1/2T)	19,217	100	109	114	
87	Dodge	Ram50	5,221	103			
85-87	Toyota	Standard Bed 4x4	39,426	105	108	106	106
85-87	Isuzu	Standard Bed	24,782	113	117	119	
85-87	Toyota	Standard Bed	57,415	116	121	121	123
	Standard Pickups		**646,288**	**58**	**59**	**59**	**58**
85-87	Ford	F-250 Super Cab 4x4	7,519	35			
85-87	Chevrolet	20 Series (3/4T) 4x4	14,320	37	36		
85-87	Ford	F-250 Super Cab	11,476	41	45		
85-87	Ford	F-250 (3/4T) 4x4	27,485	51	47	47	44
85-87	Ford	F-150 Super Cab	31,117	52	57	58	58
85-87	Ford	F-250 (3/4T)	21,502	53	58	57	
85-87	Chevrolet	20 Series (3/4T)	15,767	54	57	57	
85-87	Chevrolet	10 Series (1/2) 4x4	42,887	54	57	57	60
85-87	Ford	F-150 (1/2-3/4T) 4x4	56,249	56	55	52	53
85-87	GMC	1500 Series (1/2T) 4x4	9,341	57			
85-87	GMC	1500 Series (1/2T)	33,337	59	64	65	61
85-87	Ford	F-150 (1/2-3/4T)	150,859	59	59	61	57
85-87	Dodge	D250 (3/4T)	5,450	60			
85-87	Chevrolet	10 Series (1/2T)	126,960	62	67	68	67
85-87	Dodge	W150 (1/2T) 4x4	14,727	63	59		
85-87	Dodge	D150 (1/2T)	55,334	66	66	67	66
		UTILITY VEHICLES					
	Small Utility Vehicles		**132,422**	**93**	**95**	**95**	**91**
85-87	Ford	Bronco II 4x4	91,378	87	87	87	84
87	Jeep	Wrangler	7,866	94			
86-87	Suzuki	Samurai	16,272	115	118	115	

(See notes on page 15.)

Table 5 (Cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages - 1985-1987 Vans, Pickups, and Utility Vehicles

Model Years	Make	Series	Exposure	Size of Claim All	>$250	>$500	>$1000
		UTILITY VEHICLES (CONT'D)					
		Intermediate Utility Vehicles	**473,407**	**68**	**68**	**68**	**68**
85-87	Jeep	Grand Wagoneer	12,519	46	43		
85-87	Jeep	Wagoneer	13,399	51	49		
85-87	Dodge	Ramcharger	13,967	51	52		
85-87	Ford	Bronco	43,212	52	53	51	52
85-87	GMC	Jimmy (1/2T)	6,602	59			
85-87	Dodge	Ramcharger 4x4	12,150	61	60		
85-87	Jeep	Cherokee 4x4	91,895	62	58	59	59
85-87	Jeep	Cherokee	11,970	62	62		
85-87	Chevrolet	K10 Blazer (1/2T)	30,076	63	62	63	62
85-87	Isuzu	Trooper II 4x4	27,632	66	63	63	61
85-87	GMC	S15 Jimmy 4x4	22,051	73	72	66	
85-87	Chevrolet	S10 Blazer 4x4	102,856	78	76	76	74
85-87	Toyota	4Runner Wagon	6,043	79			
85-87	Chevrolet	S10 Blazer	58,014	85	97	100	103
87	Nissan	Pathfinder	5,029	85			
85-87	GMC	S15 Jimmy	12,539	89	91		
		Large Utility Vehicles	**59,243**	**43**	**43**	**44**	**41**
85-87	Chevrolet	Suburban (1/2T)	26,996	38	40	42	41
85-87	Chevrolet	Suburban (1/2T) 4x4	10,130	48	43		
85-87	GMC	Suburban (1/2T)	7,746	48			
85-87	Chevrolet	Suburban (3/4T)	5,709	60			

Notes for Table 5

Results are standardized by the distribution:

Youthful Operator	No Youthful Operator
10%	90%

Blanks indicate insufficient exposure.

Minimum exposure requirements for reporting:

All Claims	—	5,000 Vehicle Years
Claims >$250	—	10,000 Vehicle Years
Claims >$500	—	15,000 Vehicle Years
Claims >$1000	—	25,000 Vehicle Years

APPENDIX A

Specifications of Injury Coverages

Personal Injury Protection (PIP) Coverages

Personal injury protection coverages provide first-party in surance against medical and other types of losses in "no-fault" sates.

The personal injury protection coverages reported in this study were based on data from the 19 states and the District of Columbia listed below.

Personal Injury Protection (PIP) Coverage States:

Colorado	Michigan
Connecticut	Minnesota
Delaware	New Jersey
District of Columbia	New York
Florida	North Dakota
Georgia	Oregon
Hawaii	Pennsylvania
Kansas	South Carolina
Kentucky	Texas
Maryland	Utah

APPENDIX B

Method of Data Analysis

Personal Injury Protection Coverages

Results in this report are based on personal injury protection (PIP) coverages that are provided in so-called no-fault states. These coverages were selected because they provide medical expense reimbursement to injured occupants of the insured vehicle.

Use of PIP insurance data to identify crashes involving injury has certain limitations because these data cannot provide information on all occupant injuries. This occurs when claims for injury costs are not made under PIP coverages because of the availability of other sources of medical expense reimbursements, such as bodily injury liability and/or health insurance coverages. Consequently, PIP claim frequencies do not include all of the crashes involving injury. This limitation should not distort comparisons among different vehicles.

Vehicle Description and Identification

The Vehicle Identification Numbers (VINs) of most new automobiles sold in the United States are individually unique numbers that contain, in coded form, detailed information as to each vehicle's make, model year, series,* and other distinguishing characteristics.

The very specific vehicle types for which results are presented in this report were derived from the VINs of the individual automobiles.

*See Appendix C for definitions.

Only data with valid VINs were used for this report. Each VIN was decoded into a set of specific characteristics. For the purposes of this report the vehicle characteristics of primary concern were make, model year, series, body style, and wheelbase.

Exposure

Exposure, in terms of insured vehicle years, was computed for each individual vehicle from the coverage data. The total number of insured vehicle years for each vehicle series was then obtained by accumulating the exposure for all of the individual vehicles of that vehicle series.

For each vehicle series, the exposure was also computed for each operator age group — youthful operators and no youthful operators.*

Claim Frequency

Both pending and paid claims for an individual vehicle were first matched with its corresponding coverage data to ensure that the crash had occurred within an appropriate period of coverage for that vehicle. In every instance in which multiple claims were made for the same crash — e.g., when more than one occupant of the car incurred medical expenses — the claims were treated as a single injury claim in the calculation of claim frequencies. It should be noted that some medical expenses can sometimes be incurred even though the occupants are not injured. This can occur, for example, when precautionary medical examinations are undertaken even though no injuries are apparent or, in fact, found.

All injury claims involving medical expense reimbursements were used, together with the corresponding exposure, to compute the claim frequencies in terms of the number of claims per 1,000 insured vehicle years. The overall claim frequency results were computed using both paid and pending claims. In addition to the overall claim frequency results, separate claim frequency results were co.nputed for claims in which the medical losses exceeded $250, $500, and $1,000. The latter three results provide indications of the extent to which particular cars are over- or under-involved in crashes resulting in more significant injuries. Claims involving nonmedical losses only and claims settled without payments were not used. Thus, the claim frequencies represent the number of crashes per 1,000 insured vehicle years in which one or more injuries occurred resulting in medical expense claim payments under PIP insurance coverages.

Standardization

The losses for different vehicles can vary substantially in relation to certain nonvehicle factors. One important factor with which claim frequency varies is the operator age group, and the mix of operator ages can vary considerably among different vehicle types — so considerably that it could distort comparisons of results between vehicles if not taken into account.

Youthful operators have higher insurance claim frequencies than older drivers. Thus, if two vehicle types have different proportions of youthful operators, this difference, if not taken into consideration, would be sufficient to bias comparisons. To reduce this effect, the results for each vehicle type were weighted, using the values shown below, to produce a weighted average of the actual results for each operator

age group. In this way the results for each vehicle type are based on the same mix, or distribution, of exposure for the two operator age groups.

Because the same weights are used for each vehicle type, the effects due to operator age group are present in equal amounts in the standardized results for each vehicle type. Therefore, to the extent that the age distributions within operator age group do not vary substantially for different vehicles, these effects can no longer bias comparisons among vehicles.

This standardization procedure is widely used in vital health statistics.* The basic principle of this standardization procedure is the introduction of a standard distribution of exposure for the different operator age groups.

Operator Age Group Weights

Youthful Operator	No Youthful Operator	Combined
0.1	0.9	1.0

Mathematical Procedures

This section describes, and illustrates with an example, the mathematical calculations performed in applying the standardization procedure to the injury loss information used for this report.

For a particular vehicle series (or group of vehicles), let C represent the total number of claims (paid and unpaid) and let E_i represent the total number of insured vehicle years of exposure, where

i = y means that the classification code assigned to the vehicle indicates youthful operator, and

i = n means that the classification code assigned to the vehicle indicates no youthful operator.

Thus, youthful and no youthful operator claim frequencies (f_y and f_n, respectively), in terms of the number of claims per 1,000 insured vehicle years, are calculated as

$$f_y = (C_y/E_y) \times 1{,}000, \text{ and } f_n = (C_n/E_n) \times 1{,}000.$$

The above claim frequencies are then combined using the previously cited operator age group weights to obtain the standardized claim frequency (f) as follows:

$$f = (0.1)f_y + (0.9)f_n.$$

Example: 1987 Chevrolet Camaro

Number of Claims by Operator Age Groups		Exposure By Operator Age Groups	
Youthful	No Youthful	Youthful	No Youthful
C_y = 180	C_n = 383	E_y = 4,435.45	E_n = 14,129.82

Thus, the youthful and no youthful operator claim frequencies are:

$$f_y = (180/4{,}435.45) \times 1{,}000 = 40.58 \text{ and}$$

$$f_n = (383/14{,}129.82) \times 1{,}000 = 27.11.$$

The standardized claim frequency is calculated as follows:

$$f = (0.1)f_y + (0.9)f_n = (0.1)(40.6) + (0.9)(27.1) = 28.45.$$

Thus, the standardized claim frequency for the 1987 Chevrolet Camaro is 28.5 claims per 1,000 insured vehicle years of exposure.

Exposure Threshold For Reporting Results

A threshold of 5,000 insured vehicle years of exposure was selected for reporting the overall claim frequency results for vehicle groups and individual vehicle series. Consequently, no results are presented in this report for any of the vehicle series with smaller amounts of exposure. In addition, different thresholds were used to determine whether the claim frequency results for medical losses exceeding the specified dollar amounts were published. In order for the claim frequency results for medical losses exceeding $250 to be published, at least 10,000 insured years of exposure were required; for medical losses of greater than $500, the minimum exposure was 15,000; and for medical losses exceeding $1,000, the minimum exposure was 25,000 insured vehicle years.

It should be kept in mind that, in general the greater the exposure associated with a reported claim frequency, the more confidence can be placed in it.

Combining Results for More Than One Model Year

The relative injury claims experience of particular vehicles does not change substantially from model year to model year providing that the basic design of the vehicle remains essentially unchanged. For this reason and because substantial amounts of exposure are needed to provide reliable injury claim frequency results, the data for model years 1985 through 1987 were combined for those vehicles with unchanged basic designs.

The aggregated model year result (R) for each vehicle series (i) was obtained by weighting the relative claim frequency for each model year (j) by the applicable exposure for each model year; that is,

$$R_i = (\Sigma (exp_{ij} (f_{ij}/F_j)) / (\Sigma exp_{ij})) \times 100,$$

where

exp_{ij} = exposure for vehicle i for model year j,

f_{ij} = standardized claim frequency for vehicle i for model year j, and

F_j = standardized claim frequency for all passenger cars for model year j.

Example: Chevrolet Camaro

	1987	1986	1985
Exposure (exp)	18,565	59,214	80,356
Claim Frequency (f)	28.5	26.0	26.2
Claim Frequency (F)—all cars	21.3	21.0	20.0

Result =

$$[(18{,}565(28.5/21.3) + 59{,}214(26.0/21.0) + 80{,}356(26.2/20.0)/ (18{,}565 + 59{,}214 + 80{,}356)] \times 100 = 128.$$

*For example, see Armitage P., *Statistical Methods in Medical Research*, Wiley, New York, 1971.

APPENDIX C Definitions

Claim Frequency - The number of claims for a group of vehicles, divided by the exposure for that group.

Exposure - The time interval an individual vehicle is insured. Exposure for a group of vehicles is expressed in units of insured vehicle years.

First-Party Coverage -An insurance coverage under which the policyholder collects compensation for his losses from his own insurer regardless of fault.

No-Fault Auto Insurance - An auto insurance plan in which each driver/owner accepts financial responsibility for some or all losses sustained by himself, pedestrians hit by him, and occupants of his own vehicle in return for which he enjoys some immunity from liability for losses to third-party persons.

Operator Age Group - The factor that distinguishes those vehicles with a youthful rated driver from those vehicles without a youthful rated driver (see Youthful Operator).

Personal Injury Protection (PIP) Coverage - First-party no-fault coverage in which an insurer pays, within the specified limits, the medical, hospital, and other expenses of the insured, others in his vehicle, and pedestrians struck by him.

Rated Driver - The driver who, for insurance purposes, is considered to represent the greatest loss potential for the insured vehicles.

Vehicle Classifications - There are four vehicle classes, defined as follows:

1. **Passenger Cars** - There are four major body style groupings of passengers cars—regular two-door models, regular four-door models, station wagons and passenger vans, and sports and and specialty models. Sports and specialty models include all two-seater cars, all convertibles, all midsize and large cars with two or fewer designated rear seating positions, and all luxury cars. Each body style group is further divided into classes based on wheelbase size (rounded to the nearest inch) defined as follows:

   Small - Cars with wheelbases less than or equal to 99 inches.

   Midsize - Cars with wheelbases greater than 99 inches and less than or equal to 109 inches.

   Large - Vehicles with wheelbases greater than 109 inches.

2. **Vans** - Fully enclosed vehicles with either no hood or a very short hood, in which the engine is placed at least 50 percent behind the the windshield. The driver's position is usually well forward, nearly beside the engine, usually within the forward 25 percent of the wheelbase. These vehicles are designed for cargo transport and are equipped with a right-side cargo access door and rear doors. The cargo area is not separated from the passenger area—both are enclosed under the same roof.

3. **Pickups** - Cargo-carrying vehicles, usually on a truck chassis, with an enclosed cab and a separate open cargo area. The open cargo area generally is a box with raised sides with an opening tailgate. There are also a small number of auto pickups that are similar to regular pickups except that they are built on a passenger car chassis. Pickups are further divided into two subgroups based on curb weight—small pickups (less than 3,200 pounds) and standard pickups (3,200 pounds or more).

4. **Utility Vehicles** - Vehicles built on a heavy-duty chassis capable of off-road use. They are of conventional construction with the driver behind the engine. The cargo and passenger areas are integral with the driver area. Many of these vehicles are equipped with soft or removable tops. Frequently, these vehicles are equipped with four-wheel drive. Utility vehicles are further divided into three subgroups based on wheelbase—small utility vehicles (less than 100 inches), intermediate utility vehicles (from 100 to 120 inches), and large utility vehicles (greater than 120 inches).

Vehicle Identification Number (VIN) - A code, variously comprising both numbers and letters; normally 8 to 17 characters in length, assigned to each vehicle by its manufacturer. The VIN uniquely identifies the vehicle within at least a 10-year time span and, in recent model year vehicles, almost always contains coding that identifies the make, series, model year, and other characteristics of each vehicle.

Vehicle Series - A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Youthful Operator - For the purposes of this report, all males (married or single) under 25 years of age and all unmarried females under 25 years of age.

APPENDIX D Vehicle Series Designations

PART A: PASSENGER CARS

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Acura	Integra**	S	S		
	Legend* - 2 Dr.				M
	Legend** - 4 Dr.				M
Alfa Romeo	Milano*		S		
	Spider Convertible				S
American	Eagle		M	M	
Aston Martin	Lagonda				L
	Saloon				M
	Vantage				M
	Volante				M
Audi	GT Coupe	M			
	4000		M		
	4000 Quattro				S
	5000 - 4 Dr. & S.W.				M
	5000 Quattro** - 4 Dr. & S.W.				M
Austin Rover	Sterling 825*				M
Avanti	Avanti II				M
	Avanti Convertible*				M
Bentley	Corniche Convertible (85 & 86 only)				L
	Continental Convertible*				L
	Eight*				L
	Mulsanne				L
	Mulsanne-L				L

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
BMW	L7**				L
	M6*				M
	318i/325 - 2 Dr.				M
	318i/325** - 4 Dr.				M
	325is* - 2 Dr.				M
	325i* - 4 Dr.				M
	325i Convertible*				M
	524TD				M
	528e				M
	535i/535is				M
	635CSi/L6				M
	735i				L
Buick	Century	M	M	M	
	Electra FWD	L	L		
	Electra RWD			L	
	LeSabre	L**	L**	L	
	Regal	M			
	Riviera**				M
	Skyhawk	M	M	M	
	Skylark**		M		
	Somerset	M			
Cadillac	Allante Convertible*				S
	Brougham				L
	Cimarron		M		
	DeVille - 2 Dr. & 4 Dr.				L
	Eldorado**				M
	Fleetwood/ Fleetwood d'Elegance				L
	Fleetwood Limousine				L
	Fleetwood Sixty Special*				L
	Seville**				M
Chevrolet	Astro Van			L	
	Beretta*	M			
	Camaro				M
	Camaro Convertible*				M
	Caprice	L		L	

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Chevrolet (cont'd)	Caprice/Impala		L		
	Cavalier	M	M	M	
	Cavalier Convertible				M
	Celebrity	M	M	M	
	Chevette	S	S		
	Corsica*		M		
	Corvette				S
	Corvette Convertible**				S
	Monte Carlo	M			
	Nova		S		
	Spectrum	S	S		
	Sprint	S	S**		
Chrysler	Daytona*	S			
	LeBaron	M*	M	M	
	LeBaron Convertible*				M
	LeBaron GTS		M		
	New Yorker		M		
	New Yorker 5th Avenue		L		
	Newport		L		
Chrysler/ Plymouth/ Mitsubishi	Colt	S	S		
	Colt Vista			M	
	Colt Vista 4WD			M	
	Conquest	S			
Dodge	Aries	M	M	M	
	Caravan			L	
	Charger/Shelby	S			
	Daytona	S			
	Diplomat		L		
	Lancer		M		
	Omni		S		
	Shadow*	S	S		
	600		M		
Dodge/ Mitsubishi	Colt	S	S		
	Colt Vista			M	
	Colt Vista 4WD			M	

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Ferrari	Mondial Convertible				M
	Mondial Quattroval				M
	Testarossa**				M
	308/328				S
	308/328 Convertible				S
Bertone	X 1/9				S
Ford	Aerostar**			L	
	Crown Victoria	L	L	L	
	Escort	S	S	S	
	EXP**				S
	Mustang				M
	Mustang Convertible				M
	Taurus**		M	M	
	Tempo	M	M		
	Tempo 4WD*	M	M		
	Thunderbird	M			
GMC	Safari Van			L	
Honda	Accord**	M	M		
	Civic	S	S	S	
	Civic CRX				S
	Civic 4WD			S	
	Prelude	S			
Hyundai	Excel**	S	S		
Isuzu	Impulse	S			
	I-Mark	S	S		
Jaguar	XJ-S				M
	XJ-SC**				M
	XJ6				L

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Lincoln	Continental				M
	Mark VII				M
	Town Car				L
Lotus	Esprit Turbo				S
Maserati	Biturbo				S
	Spyder Convertible**				S
	425**				M
Mazda	RX-7**				S
	323	S**	S**	S*	
	626	S	S		
Mercedes Benz	190D/E				M
	260E*				L
	300D/E**				L
	300SDL**				L
	300TD*				L
	380/560SL Convertible				S
	420SEL**				L
	500/560SEL				L
	500SEC/560SEC				L
Mercury	Cougar	M			
	Grand Marquis	L	L	L	
	Lynx	S	S	S	
	Sable**		M	M	
	Topaz	M	M		
	Tracer*	S	S		
Merkur	XR4Ti	M			
	Scorpio*				M

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Mitsubishi	Cordia	S			
	Galant		M		
	Mirage	S	S*		
	Starion	S			
	Tredia		S		
	Wagon*			S	
Nissan	Maxima		M	M	
	Pulsar*	S			
	Sentra*	S	S	S	
	Sentra 4WD*			S	
	Stanza		M*	S**	
	Stanza 4WD**			S	
	Van*			S	
	200 SX	S			
	300 ZX				S
	300 ZX 2+2				S
Oldsmobile	Calais	M	M**		
	Custom Cruiser			L	
	Cutlass	M	M		
	Cutlass Ciera	M	M	M	
	Delta 88**	L	L		
	Firenza	M	M	M	
	Ninety-Eight	L	L		
	Toronado**				M
Peugeot	505		M	L	
Plymouth	Caravelle		M		
	Gran Fury		L		
	Horizon		S		
	Reliant	M	M	M	
	Sundance*	S	S		
	Turismo	S			
	Voyager			L	

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Pontiac	Bonneville		L*		
	Fiero				S
	Firebird				M
	Firebird Convertible*				M
	Firefly	S			
	Grand Am	M	M**		
	Grand Prix	M			
	Parisienne			L	
	Sunbird	M	M	M	
	Sunbird Convertible				M
	1000	S	S		
	6000	M	M	M	
Porsche	911 Coupe				S
	911 Targa/Cabriolet				S
	924 Coupe*				S
	928 Coupe				S
	944 Coupe				S
Renault	Alliance/Encore	S	S		
	Alliance Convertible				S
	GTA*	S			
	GTA Convertible*				S
Rolls Royce	Camargue				L
	Corniche Convertible				L
	Silver Spirit				L
	Silver Spur				L
Saab	900	S	S		
	900 Convertible**				S
	9000**				M
Subaru	DL/GL	S**	S	S	
	DL/GL 4WD			S	
	GL 4WD	S**	S		
	Hatchback	S			
	Hatchback 4WD	S			

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Subaru (cont'd)	Justy*	S			
	XT Coupe	S			
	XT Coupe DL				S
	XT Coupe 4WD	S			
Toyota	Camry*		M	M	
	Celica**	S			
	Celica Convertible*				S
	Corolla	S	S		
	Corolla FX*	S			
	Cressida		M	M	
	MR2				S
	Supra**				M
	Tercel	S*	S*	S	
	Tercel 4WD			S	
	Van			S	
	Van 4WD*			S	
TVR	280i**				S
	280i Convertible**				S
Volkswagen	Cabriolet				S
	Fox*	S	S	S	
	Golf	S	S		
	GTI	S			
	Jetta	S	S		
	Quantum		M	M	
	Quantum 4WD			M	
	Scirocco	S			
	Vanagon			S	
Volvo	240		M	M	
	740/760-4 Dr. & S.W.				M
	780*				M

(See notes on page 27.)

PART A: PASSENGER CARS (Cont'd)

MAKE	SERIES	2-DOOR MODEL	4-DOOR MODEL	S.W./ PASS.VAN	SPORTS/ SPECIALTY
Yugo	Yugo**	S			

S - Small
M - Midsize
L - Large

* 1987 Models Only
** 1986 and 1987 Models Only

PART B: VANS, PICKUPS, AND UTILITY VEHICLES

VEHICLE CLASS	MAKE	SERIES
Vans	Chevrolet	Astro Cargo Van Chevyvan (1/2T) Chevyvan (3/4T) Sportvan (1/2T) Sportvan (3/4T)
	Dodge	B150 (1/2T) B150 Cargo Van B250 (3/4T) B250 Cargo Van Mini Ram/Royal
	Ford	Aerostar Cargo Van** E-150 Club Wagon (1/2-3/4T) E-150 Econoline (1/2-3/4T) E-250 Club Wagon (3/4T) E-250 Econoline (3/4T)
	GMC	Rally Wagon (1/2T) Rally Wagon (3/4T) Safari Cargo Van Vandura (1/2T) Vandura (3/4T)
	Mitsubishi	Cargo Van*
	Toyota	Cargo Van Cargo Van 4 x 4*
	Volkswagen	Vanagon Camper
	Chevrolet	Crew Cab (3/4T) El Camino S10 S10 4 x 4

(See notes on page 32.)

PART B: VANS, PICKUPS, AND UTILITY VEHICLES (Cont'd)

VEHICLE CLASS	MAKE	SERIES
Pickups (cont'd)	Chevrolet (cont'd)	S10 Extended Cab*
		S10 Extended Cab 4 x 4*
		10 Series (1/2T)
		10 Series (1/2T) 4 x 4
		20 Series (3/4T)
		20 Series (3/4T) 4 x 4
	Dodge	Dakota (1/2T)*
		Dakota (1/2T) 4 x 4*
		D150 (1/2T)
		D250 (3/4T)
		Ram 50*
		Ram 50 Long Bed*
		Ram 50 4 x 4*
		Ram 50 Long Bed 4 x 4*
		W150 (1/2T) 4 x 4
		W250 (3/4T) 4 x 4
	Ford	F-150 (1/2-3/4T)
		F-150 (1/2-3/4T) 4 x 4
		F-150 Super Cab
		F-150 Super Cab 4 x 4
		F-250 (3/4T)
		F-250 (3/4T) 4 x 4
		F-250 Super Cab
		F-250 Super Cab 4 x 4
		Ranger
		Ranger 4 x 4
		Ranger Super Cab**
		Ranger Super Cab 4 x 4**
	GMC	Caballero
		S15
		S15 4 x 4
		S15 Extended Cab*
		S15 Extended Cab 4 x 4*
		1500 Series (1/2T)
		1500 Series (1/2T) 4 x 4
		2500 Crew Cab (3/4T)

(See notes on page 32.)

PART B: VANS, PICKUPS, AND UTILITY VEHICLES (Cont'd)

VEHICLE CLASS	MAKE	SERIES
Pickups (cont'd)	GMC (cont'd)	2500 Series (3/4T) 2500 Series (3/4T) 4 x 4
	Isuzu	Long Bed Long Bed 4 x 4 Long Cab** Long Cab 4 x 4** Standard Bed Standard Bed 4 x 4
	Jeep/AMC	Comanche* Comanche 4 x 4* Comanche Long Bed** Comanche Long Bed 4 x 4** J10 Long Bed (1/2T) J20 Long Bed (3/4T)
	Mazda	B Series Cab Plus 4 x 4* B Series Long 4 x 4* B Series Standard 4 x 4* B Series Cab Plus** B Series Long Bed** B Series Standard Bed**
	Mitsubishi	Long Bed* Long Bed 4 x 4* Standard Bed* Standard Bed 4 x 4*
	Nissan	King Cab** King Cab 4 x 4** Long Bed** Long Bed 4 x 4** Standard Bed** Standard Bed 4 x 4**

(See notes on page 32.)

PART B: VANS, PICKUPS, AND UTILITY VEHICLES (Cont'd)

VEHICLE CLASS	MAKE	SERIES
Pickups (cont'd)	Subaru	Brat
	Toyota	Long Bed (1/2T) Long Bed (1/2T) 4 x 4 Standard Bed Standard Bed 4 x 4 Xtra Cab Xtra Cab 4 x 4 Xtra Cab Long Bed** 4Runner
Utility Vehicles	Chevrolet	K10 Blazer (1/2T) 4x4 Suburban (1/2T) Suburban (1/2T) 4 x 4 Suburban (3/4T) Suburban (3/4T) 4 x 4 S10 Blazer S10 Blazer 4 x 4
	Dodge	AD150 Ramcharger AW150 Ramcharger 4 x 4
	Dodge/Mitsubishi	Raider*
	Ford	Bronco 4x4 Bronco II** Bronco II 4x4
	GMC	Jimmy (1/2T) Suburban (1/2T) Suburban (1/2T) 4 x 4 Suburban (3/4T) Suburban (3/4T) 4 x 4 S15 Jimmy S15 Jimmy 4 x 4

(See notes on page 32.)

PART B: VANS, PICKUPS, AND UTILITY VEHICLES (Cont'd)

VEHICLE CLASS	MAKE	SERIES
Utility Vehicles (cont'd)	Isuzu	Trooper II 4 x 4
	Jeep/AMC	Cherokee Cherokee 4 x 4 Grand Wagoneer Wagoneer Wrangler*
	Mitsubishi	Montero
	Nissan	Pathfinder*
	Range Rover	Range Rover*
	Suzuki	Samurai** Samurai Van**
	Toyota	Land Cruiser 4Runner Wagon

* 1987 Models Only
** 1986 and 1987 Models Only

HLDI Publications

Research reports published by the Highway Loss Data Institute are:

R72-1 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1972 Models,* June 1973.

R73-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1973 Models Compared with 1972 Models,* September 1973.

R73-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models,* March 1974.

R73-3 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models During Their First Two Years,* December 1974.

R73-4 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models During Their First Three Years,* December 1975.

R74-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1974 Models,* May 1974.

R74-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1974 Models During Their First Year,* December 1974.

R74-3 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1974 Models During Their First Two Years,* December 1975.

R75-1 *Automobile Insurance Losses, Collision Coverages, Initial Results for 1975 Models,* July 1975.

R75-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1975 Models During Their First Year,* December 1975.

R76-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1976 Models,* June 1976.

R76-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1976 Models During Their First Year, 1975 Models During Their First Two Years, 1974 Models During Their First Three Years,* December 1976.

R77-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1977 Models,* June 1977.

R77-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1977 Models During Their First Year, 1976 Models During Their First Two Years, 1975 Models During Their First Three Years,* December 1977.

R78-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1978 Models,* June 1978.

R78-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1978 Models During Their First Year, 1977 Models During Their First Two Years, 1976 Models During Their First Three Years,* January 1979.

R79-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1979 Models,* June 1979.

R79-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1979 Models During Their First Year, 1978 Models During Their First Two Years, 1977 Models During Their First Three Years,* December 1979.

R80-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1980 Models,* June 1980.

R80-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1980 Models During Their First Year, 1979 Models During Their First Two Years, 1978 Models During Their First Three Years,* December 1980.

R81-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1981 Models,* July 1981.

R81-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years,* December 1981.

R82-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1982 Models,* July 1982.

R82-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1982 Models During Their First Year, 1981 Models During Their First Two Years; 1980 Models During Their First Three Years,* December 1982.

R83-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1983 Models,* June 1983.

R83-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1983 Models During Their First Year, 1982 Models During Their First Two Years, 1981 Models During Their First Three Years,* January 1984.

R84-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1984 Models,* June 1984.

R84-2 *Insurance Losses, Collision Coverages; Passenger Vehicles, Vans, Pickups, and Utility Vehicles; 1984 Models During Their First Year, 1983 Models During Their First Two Years, 1982 Models During Their First Three Years,* January 1985.

R85-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1985 Models,* July 1985.

R85-2 *Insurance Collision Report, Passenger Vehicles, Vans, Pickups, and Utility Vehicles, 1985 Models During Their First Year, 1984 Models During Their First Two Years, 1983 Models During their First Three Years,* January 1986.

R86-1 *Insurance Collision Report, Initial Results for 1986 Automobiles,* August 1986.

R86-2 *Insurance Collision Report, Passenger Cars, Vans, Pickups, and Utility Vehicles, 1986 Models During Their First Year, 1985 Models During Their First Two Years, 1984 Models During Their First Three Years* December 1986.

R87-1 *Insurance Collision Report, Initial Results for 1987 Automobiles,* July 1987.

R87-2 *Insurance Collision Report, Passenger Cars, Vans, Pickups, and Utility Vehicles, 1987 Models During Their First Year, 1986 Models During Their First Two Years, 1985 Models During Their First Three Years,* December 1987.

R88-1 *Insurance Collision Report, Initial Results for 1988 Automobiles,* July 1988

V78-1 *Automobile Insurance Losses, Non-Commercial Collision Coverages; Variations by Make and Series, Vans, Pickups and Utility Vehicles; 1978 Models During Their First Year, 1977 Models During Their First Two Years,* February 1979.

V79-1 *Automobile Insurance Losses, Non-Commercial Collisions Coverages; Variations by Make and Series, Vans, Pickups and Utility Vehicles; 1979 Models During Their First Year, 1978 Models During Their First Two Years,* April 1980.

V79-2 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results by Size of Claim for 1977, 1978, and 1979 Vans, Pickup Trucks, and Utility Vehicles,* October 1980.

V79-3 *Insurance Theft Losses; Vans, Pickups, and Utility Vehicles, 1979 Models,* May 1981.

V80-1 *Automobile Insurance Losses, Non-Commercial Collision Coverages; Variations by Make and Series, Vans, Pickups, and Utility Vehicles; 1980 Models During Their First Year, 1979 Models During Their First Two Years, 1978 Models During Their First Three Years,* December 1980.

V80-2 *Automobile Insurance Losses, Personal Injury Protection Coverages; Injury Claim Frequency Results by Size of Claim; Vans, Pickup Trucks, and Utility Vehicles, 1977-1980 Models,* September 1981.

I75-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974 and 1975 Models,* June 1976.

I75-2 *Automobile Insurance Losses, Percentage of Collision Claims with Associated Injury Claims for 1974 and 1975 Models,* March 1977.

I76-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974, 1975, and 1976 Models,* November 1977.

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